Principles of Visual Design

BIOE 571
Spring 2021 Syllabus

Meeting time: 8:00 – 11:00 am (180 mins) T, Th

Location: Virtual

Instructor: Caleb J. Bashor (Department of Bioengineering)
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OVERVIEW

This course will instruct participants in conceptual and technical approaches for effective visual communication of data, technical information, and engineering / science concepts. Knowledge and skills will be developed through short lectures, in-class studio instruction, homework design assignments, presentations, and a final design project.

COURSE OBJECTIVES

The course will build skills-based and conceptual frameworks for visual design through a set of **core design tenets** that includes *composition, color theory, observational representation, typography, sequentiality,* and *information visualization*. By completing design tasks assigned throughout the course, participants will be taught methods for applying these tenets to create **visual materials relevant to engineering research**, including design of *figures* (both data and non-data), *graphical representation of real-world objects*, *diagrams / cartoons*, *infographics*, *presentation slides*, and *posters*. Emphasis will be placed on preparing material to communicate information to different audiences ranging from technical experts to lay people.

Course participants will conduct design work on their computers using Adobe Creative Cloud software, but also maintain a rigorous journal /sketch diary where they explore and plan new works and ideas for further development or execution on a larger scale. All class notes will be kept in this journal, which will be employed in the development of class assignments, and for planning all projects. Participants will be encouraged to bring material from their own thesis research projects into the course, including data, figures, and concepts, to work on and develop during the class. Additionally, the course will emphasize teamwork and completion of design tasks through collaboration. To this end, portions of the course will be taught concurrently with ARTS103 (2D Design), giving participants the opportunity to interact with students with non-technical backgrounds. For final design projects, participants will work in teams with ARTS103 to design posters that convey scientific / engineering concepts to a broad audience.

LEARNING OUTCOMES

Upon completion of this class, students will be able to:

I. Use basic technical skills associated with 2D design:

- Use graphic design software, including Adobe Illustrator and Photoshop.
- Use sketching and representational drawing techniques to develop visual ideas.
- Critique and critically analyze their own work and the work of their peers.

II. Demonstrate proficiencies in the use of key design concepts:

- Construction of new 2D design through rigorous practice, demonstrating a facility with basic

design elements including, but not limited to: composition, measurement, line, shape, surface, texture, light and shadow.
- Using principles of color in design and proficiency in its application in new designs.
- Using design principles to visually convey sequential information.
- Developing techniques and conceptual approaches for visualizing information, including scientific data.

III. Demonstrate application of skills and concepts to develop materials for communicating engineering research contents:
- Data figures
- Cartoons and non-data figures
- Presentation slides
- Posters

MATERIALS

Students will be expected to use their own computers to run the Adobe Creative Cloud. A subscription to ACC for the duration of the class will be provided by the university. Additionally, students will be expected to acquire and use a pressure sensitive pen input device, such as the Wacom One, or better. Students will acquire and maintain an 8.5 x 11 drawing notebook where they will record their notes and develop early iterations of their ideas for class projects.

Required Reading:
Launching the Imagination, Mary Stewart, 2003

Suggested Reading:
Drawing: A Contemporary Approach by Teel Sale, Claudia Betti; The New Drawing on the Right Side of the Brain, by Betty Edwards; Color Drawing, by Michael Doyle, Michael E. Doyle; The Elements of Color by Johannes Itten; Interaction of Color, by Josef Albers

ABSENCE POLICY

Three unexcused absences will result in an inability to pass this course. Arriving late to class is highly disruptive. Tardiness: Two late arrivals = one unexcused absence, and is cumulative.

EXAMS & PAPERS

A total of 12 design assignments will be given weekly throughout the course that instruct participants in the technical and conceptual aspects of the design process. Course participants will be given a week to complete these assignments, which will be critiqued by the instructor and the rest of the class. Assignments will be evaluated based on completeness of technical tasks and the participants ability to put to use conceptual tools discussed in the course. Handing in assignments late will result in the reduction of maximum possible grade by one letter for every 24 hours (not class meetings). Your assignments and binder are covered by the honor code.

FINAL PROJECT

Students will work in groups with VADA students to complete a final visual design project that brings together all conceptual and technical aspects of the course. The format will be selected on a class-by-class basis. The topic will be selected by participants and can be related to participants' own PhD research projects.

PARATICIPATION

Participation will be assessed based on attendance, participation in class discussion, participation in critique sessions, and peer-evaluation of participation on the team final project.

GRADE POLICIES

Work will be evaluated weekly during the semester. The Final grade will consist of:

- Grades on design assignments: **40%**
  - *each of the design assignments will be worth **3.33%***
- Participation: **30%**
  - *attendance – **10%***
  - *discussion – **10%***
  - *critiques – **10%***
- Final project: **30%**

RICE HONOR CODE

In this course, all students will be held to the standards of the Rice Honor Code, a code that you pledged to honor when you matriculated at this institution. If you are unfamiliar with the details of this code and how it is administered, you should consult the Honor System Handbook at http://honor.rice.edu/honor-system-handbook/. This handbook outlines the University's expectations for the integrity of your academic work, the procedures for resolving alleged violations of those expectations, and the rights and responsibilities of students and faculty members throughout the process.

DISABILITY SUPPORT SERVICE

If you have a documented disability or other condition that may affect academic performance you should: 1) make sure this documentation is on file with Disability Support Services (Allen Center, Room 111 / adarice@rice.edu / x5841) to determine the accommodations you need; and 2) talk with me to discuss your accommodation needs.